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VARIATION OF LATITUDE IN SAN FRANCISCO, AS DETERMINED BY PROFESSOR GEORGE DAVIDSON.

The *Astronomical Journal*, No. 323, contains an account of a very extensive and important series of observations made by Professor GEORGE DAVIDSON, between May 27, 1891, and August 19, 1892, to determine the variation of the latitude of the place of observation in San Francisco. Two instruments were employed in the work. The probable error of a single determination of latitude with the first instrument was $0''.28$. The second instrument gave more accurate results, the error being $0''.19$. The corresponding errors for Rockville and Honolulu, where similar instruments were employed, were $0''.17$ and $0''.21$ respectively. The less accurate results from the first instrument are probably due to the defective stability of the old form of coast survey zenith telescope and perhaps to the inferiority of its levels, and to the fact that only one level was employed for part of the time. Whatever was lacking in instrumental equipment was more than made up, however, by the very large number of observations, no less than 6768 determinations of the latitude having been secured on 237 nights.

The minimum value of the latitude (observed) was

$$1891, \text{ October } 22, \ \phi = 37^\circ\ 47'\ 28''.118.$$

The maximum value was

$$1892, \text{ May } 15, \ \phi = 37^\circ\ 47'\ 28''.517.$$

The range was then about $0''.4$, corresponding to about 40 feet on the Earth's surface.

Professor DAVIDSON'S observations are well represented by the following formula (where t is the number of days after January 0, 1891):

$$\begin{aligned}\phi = 37^\circ\ 47'\ 28''.334 &+ 0''.171 \sin (0.83526\, t + 3^\circ.7) \\ &+ 0''.074 \sin (0.98563\, t + 20^\circ.5).\end{aligned}$$

The periods of the two cyclic functions were assumed from CHANDLER'S values, namely, 431 and 365.25 days respectively; and, as has been said, the observations are well represented on that assumption. It is understood that Professor DAVIDSON is continuing this important research. E. S. H.

LICK OBSERVATORY, 1894, August 4.